

CLAIMS

1. A syringe comprising:
an outer tube,
a gasket slidable in said outer tube,
a pusher inserted through an opening of a base end of said outer tube and operable for moving said gasket,
a stopper disposed on said pusher to be slidable along the longitudinal direction of said pusher,
fixing means for selecting and fixing the position of said stopper on said pusher, and
an operating portion provided in said stopper for performing a pressing operation, a traction operation or a pinching operation, wherein
the position of said stopper on said pusher can be regulated by releasing the fixation by said fixing means through an operation at said operating portion, and
the depth of insertion of said pusher into said outer tube is restricted by abutment of said stopper on a portion of said outer tube.

2. A syringe as set forth in claim 1, wherein said fixing means is returned to a fixation state by elasticity when the operation on said operating portion is released.

3. A syringe as set forth in claim 1 or 2, wherein said fixing means comprises a rack provided on said pusher and including a plurality of engaging recessed portions or engaging projected portions provided at a predetermined interval along the longitudinal direction of said pusher, and an engaging portion provided on said stopper to be displaceable between a state of being engaged with said rack and a state of being retracted from said rack, and

said engaging portion is normally engaged with said rack and is retracted from said rack by an operation at said operating portion.

4. A syringe as set forth in claim 3, wherein said fixing means comprises a pressing portion operated in conjunction with said operating portion to be displaced between a first position for pressing said engaging portion to be engaged with said rack and a second position for releasing the pressing, and biasing means biasing said pressing portion to bring into said first position, and

said fixing means is normally in such a state that said pressing portion is located in said first position and said engaging portion is engaged with said rack to fix said

stopper, said fixing means being so operated that, when said operating portion is operated, said pressing portion is moved to said second position, whereby said engaging portion is retracted from said rack and a fixation of said stopper is released, and when the operation on said operating portion is released, said fixing means is returned into the state for fixation of said stopper by the biasing force of said biasing means.

5. A syringe as set forth in claim 3, wherein said fixing means comprises biasing means biasing said engaging portion to displace from a state of being retracted from said rack to a state of being engaged with said rack, said fixing means is normally in such a state that said engaging portion is engaged with said rack to fix said stopper, and said fixing means is so operated that, when said operating portion is operated, said engaging portion is retracted from said rack to release a fixation of said stopper, and when the operation on said operating portion is released, said fixing means is returned into the state for fixation of said stopper by the biasing force of said biasing means.

6. A syringe as set forth in any of claims 3 to 5, wherein said pusher comprises a main body portion in such a

shape that plate pieces are intersected in a cross form, and said rack is formed in a portion of said plate pieces.

7. A syringe as set forth in any of claims 1 to 6, wherein

said pusher comprises a rail portion, and

said stopper comprises a slide portion slid along said rail portion, and said stopper is slid along the longitudinal direction of said pusher by guiding of said slide portion on said rail.

8. A syringe comprising:

an outer tube,

a gasket slidable in said outer tube,

a pusher inserted through an opening of a base end of said outer tube and operable for moving said gasket,

a stopper provided on said pusher so that said stopper can be slid along the longitudinal direction of said pusher and the position of said stopper on said pusher can be regulated to a desired position, and

an operating member provided to be displaceable relative to said stopper, said operating member performing an operation of fixing said stopper relative to said pusher by pressing a portion of said stopper against said pusher,

wherein

the depth of insertion of said pusher into said outer tube is restricted by abutment of said stopper on a portion of said outer tube.

9. A syringe as set forth in claim 8, wherein either one or both of abutment surfaces of said stopper and said pusher are formed as rough surfaces or are formed of a material having a high frictional resistance.

10. A syringe as set forth in claim 9, wherein said material having a high frictional resistance is an elastic material.

11. A syringe as set forth in claim 9 or 10, wherein said pusher is provided with a pair of the abutment surfaces substantially parallel to each other.

12. A syringe as set forth in any of claims 8 to 11, wherein said stopper comprises a stopper main body, and a brake portion pressed against said pusher by an operation of said operating member.

13. A syringe as set forth in claim 12, wherein

said pressing of said brake portion against said pusher is performed by clamping of said brake portion between a portion of said operating member and said pusher.

14. A syringe as set forth in claim 12, wherein said pressing of said brake portion against said pusher is performed by fitting a portion of said operating member between said stopper main body and said pusher so as to move said stopper main body in the direction for spacing away from said pusher.

15. A syringe as set forth in any of claims 1 to 14, wherein said pusher is provided thereon with graduations for indicating the position of said stopper corresponding to the amount of liquid discharged.

16. A syringe as set forth in claim 15, wherein said pusher comprises positioning means for positioning said stopper at the position of 0 (zero) of said graduations.

17. A syringe as set forth in any of claims 1 to 16, wherein a chemical is preliminarily contained in a space surrounded by said outer tube and said gasket.